

IN THE CLAIMS:

1. (Currently Amended) An optical fiber having a grating and comprising~~Fiber gratings characterized in that it comprises a core~~ of made from silica glass free of germanium and containing 100 to 1000 ppm fluorine and 4 to 7 ppm OH groups and a cladding surrounding the outer periphery of said core thereof, and wherein that said grating is core has gratings written in said core by irradiating said core with a femtosecond laser or picosecond laser radiations.
2. (Cancelled).
3. (Currently Amended) The optical fiber~~Fiber~~ gratings as claimed in claim 1 wherein, which is characterized in that said cladding is made from a silica glass containing 1000 to 7000 ppm of fluorine, or a silica glass containing 2000 to 10000 ppm of boron.
4. (Currently Amended) The optical fiber~~Fiber~~ gratings as claimed in claim 1 wherein, which is characterized in that said cladding comprises plural hollow holes extending in parallel with the optical axis.
5. (Currently Amended) The optical fiber~~Fiber~~ gratings as claimed in claim 1; which is characterized in that wherein said cladding comprises plural hollow holes extending in parallel with the optical axis.
6. (Currently Amended) The optical fiber~~Fiber~~ gratings as claimed in claim 1

wherein, which is characterized in that said cladding is provided with a protective coating layer on the outer periphery thereof.

7. (Currently Amended) A method for fabricating an optical fiber with a grating gratings, said method comprising directing characterized in that it comprises irradiating an interference light generated by interfering two coherent femtosecond laser radiations or picosecond laser beams to be coincident, with interference, on radiations to an optical fiber comprising a core made from silica glass free of germanium and containing 100 to 1000 ppm fluorine and 4 to 7 ppm OH groups and a cladding surrounding the outer periphery of said core thereof, thereby writing the grating into gratings in said core.

8. (Currently Amended) A method for fabricating an optical fiber with a grating gratings as claimed in claim 7, further comprising forming which is characterized in that a flat area on part is provided to the outer surface of said cladding, and wherein that said laser beams are coincident on interference light is irradiated to said flat areapart.

9. (Currently Amended) A method for fabricating an optical fiber with a grating gratings as claimed in claim 7 further comprising providing, which is characterized in that a protective coating layer on is provided to the outer periphery of said cladding, and wherein that said laser beams are interference light is irradiated from the outer side of said protective coating layer.

10. (New) The optical fiber as claimed in claim 1 wherein said grating has a period of refractive index of about 100mm to 1 μ m.

11. (New) The optical fiber as claimed in claim 5 wherein said holes constitute 10-60% of the cross-sectional area of the optical fiber.

12. (New) A method for fabricating an optical fiber as claimed in claim 7 further comprising treating said core and cladding with hydrogen.

13. (New) A method for fabricating an optical fiber as claimed in claim 7 further comprising changing the period of gratings by changing the angle of interference of the two laser beams.